

**CHICAGO** **welding**  
**ELECTRIC** **systems**

# ARC WELDER 135AC/105DC AMP

**Model 97719**

## SET UP AND OPERATING INSTRUCTIONS



Visit our website at: <http://www.harborfreight.com>



**Read this material before using this product.  
Failure to do so can result in serious injury.  
SAVE THIS MANUAL.**

Copyright© 2008 by Harbor Freight Tools®. All rights reserved. No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

**For technical questions or replacement parts, please call 1-800-444-3353.**

---

## CONTENTS

---

IMPORTANT SAFETY INFORMATION .....	3
GENERAL SAFETY RULES.....	3
SPECIFIC SAFETY RULES.....	5
SPECIFICATIONS.....	9
UNPACKING .....	9
INITIAL SET UP	
INSTRUCTIONS.....	9
ASSEMBLY .....	9
OPERATING INSTRUCTIONS.....	10
WORK PIECE AND WORK AREA SET UP .....	10
GENERAL OPERATING INSTRUCTIONS.....	11
MAINTENANCE AND SERVICING.....	13
TROUBLESHOOTING.....	14
PLEASE READ THE FOLLOWING CAREFULLY .....	14
PARTS LIST.....	15
ASSEMBLY DIAGRAM .....	16
LIMITED 1 YEAR / 90 DAY WARRANTY.....	17

---

## SAVE THIS MANUAL

---

Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

---

## IMPORTANT SAFETY INFORMATION

---

In this manual, on the labeling, and all other information provided with this product:



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

### **DANGER**

**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### **WARNING**

**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **CAUTION**

**CAUTION**, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

### **NOTICE**

**NOTICE** is used to address practices not related to personal injury.

### **CAUTION**

**CAUTION**, without the safety alert symbol, is used to address practices not related to personal injury.

---

### General Safety Rules



**WARNING!** Read all instructions. Failure to follow all instructions listed below may result in electric shock, fire, and/or serious injury. The term "power tool" in all of the warnings listed below refers to your line-operated (corded) Arc Welder.

### SAVE THESE INSTRUCTIONS

1. **Work area safety**
  - a. Keep work area clean and well lit. *Cluttered or dark areas invite accidents.*
  - b. Do not operate power tools in explosive atmospheres, such as in the presence of flammable liquids, gases or dust. *Power tools create sparks which may ignite the dust or fumes.*
  - c. Keep children and bystanders away while operating a power tool. *Distractions can cause you to lose control.*

## 2. Electrical safety

- a. Avoid body contact with grounded surfaces such as pipes, radiators, ranges and refrigerators. There is an increased risk of electric shock if your body is grounded.
- b. Do not touch exposed electrical parts.
- c. Do not expose power tools to rain or wet conditions. Water entering a power tool will increase the risk of electric shock.
- d. Do not abuse the cord. Never use the cord for pulling or unplugging the power tool. Keep cord away from heat, oil, sharp edges or moving parts. Damaged or entangled cords increase the risk of electric shock.
- e. When operating a power tool outdoors, use an extension cord suitable for outdoor use. Use of a cord suitable for outdoor use reduces the risk of electric shock.

## 3. Personal safety

- a. Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. *A moment of inattention while operating power tools may result in serious personal injury.*
- b. Use safety equipment. Always wear ANSI-approved safety glasses and arc shaded, impact safety full face shield. *Safety equipment such as NIOSH-approved respirator, heavy-duty work gloves, non-skid safety shoes, or hearing protection used for appropriate conditions will reduce personal injuries.*

- c. Avoid accidental starting. Ensure the switch is in the off-position before plugging in.
- d. Remove any adjusting key or wrench before turning the power tool on. *A wrench or a key left attached to a rotating part of the power tool may result in personal injury.*
- e. Do not overreach. Keep proper footing and balance at all times. *This enables better control of the power tool in unexpected situations.*

## 4. Power tool use and care

- a. Do not force the power tool. Use the correct power tool for your application. *The correct power tool will do the job better and safer at the rate for which it was designed.*
- b. Do not use the power tool if the switch does not turn it on and off. *Any power tool that cannot be controlled with the switch is dangerous and must be repaired.*
- c. Disconnect the plug from the power source before making any adjustments, changing accessories, or storing power tools. *Such preventive safety measures reduce the risk of starting the power tool accidentally.*
- d. Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool. *Power tools are dangerous in the hands of untrained users.*
- e. Maintain power tools. Check for misalignment or binding of moving parts, breakage of parts and any other condition that may affect the power tool's operation. If damaged,

have the power tool repaired before use. *Many accidents are caused by poorly maintained power tools.*

- f. Use the power tool, accessories and tool bits etc., in accordance with these instructions and in the manner intended for the particular type of power tool, taking into account the working conditions and the work to be performed. *Use of the power tool for operations different from those intended could result in a hazardous situation.*

## 5. Service

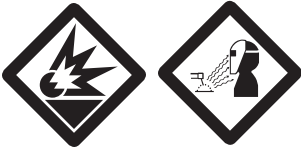
- a. Have your power tool serviced by a qualified repair person using only identical replacement parts. *This will ensure that the safety of the power tool is maintained.*

### Specific Safety Rules

1. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
2. NEVER connect one Cable (33, 34) to a **DC** Cable Connection Knob (22) and the other Cable to an **AC** Cable Connection Knob.
3. ALWAYS unplug the Power Cord (32) from its electrical outlet before connecting Cables (33, 34).
4. Avoid electrical shock. Do not permit electrically live parts, cables, or electrodes to contact skin, clothing, or gloves. Wear ANSI-approved protective clothing. This unit draws enough current to cause serious injury or death. Before turning the welder on, check the electrode holder to be sure that there are no protruding screw heads, and that all insulation is secure. Do not weld unless you are insulated from ground and the work piece.
5. Avoid eye and body damage. Arc rays and infrared radiation can injure eyes and burn skin. Wear ANSI-approved eye and body protection. Do not allow viewing by visitors without proper eye and body protection. Use a Face Shield with arc shaded filter plate.
6. Move flammable and explosive material at least 35 feet from the welding arc to prevent welding sparks or molten metal from starting a fire. Keep a type ABC fire extinguisher within easy reach. Thoroughly clean the object being welded of any paint, grease, or other foreign material.
7. Avoid unintentional starting. Prepare to begin work before turning on the tool.
8. Do not leave the tool unattended when it is plugged into an electrical outlet. Turn off the tool, and unplug it from its electrical outlet before leaving.
9. Use clamps (not included) or other practical ways to secure and support the work piece to a stable platform. Holding the work by hand or against your body is unstable and may lead to loss of control.
10. This product is not a toy. Keep it out of reach of children.
11. Industrial applications must follow OSHA guidelines.


12. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure. In addition, people with pacemakers should:
- Avoid operating alone.
  - Do not use with power switch locked on.
  - Properly maintain and inspect to avoid electrical shock.
  - Any power cord must be properly grounded. Ground Fault Circuit Interrupter (GFCI) should also be implemented – it prevents sustained electrical shock.

13. **WARNING:** This product, when used for welding, plasma cutting, soldering, or similar applications, produces chemicals known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code § 25249.5, *et seq.*)

14.  Prevent eye injury and burns. Wearing and using ANSI-approved personal safety clothing and safety devices reduce the risk for injury.

- Wear ANSI-approved safety impact eye goggles underneath welding eye protection featuring at least a Number 10 shade lens rating.
- Leather leggings, fire resistant shoes or boots should be worn when using this product. Do not wear pants with cuffs, shirts with open pockets, or any clothing that can catch and hold molten metal or sparks.

- Keep clothing free of grease, oil, solvents, or any flammable substances. Wear dry, insulating gloves and protective clothing.
- Wear an approved head covering to protect the head and neck. Use aprons, cape, sleeves, shoulder covers, and bibs designed and approved for welding and cutting procedures.
- When welding/cutting overhead or in confined spaces, wear flame resistant ear plugs or ear muffs to keep sparks out of ears.

15.  Prevent accidental fires. Remove any combustible material from the work area.

16. When possible, move the work to a location well away from combustible materials. If relocation is not possible, protect the combustibles with a cover made of fire resistant material.

17. Remove or make safe all combustible materials for a radius of 35 feet (10 meters) around the work area. Use a fire resistant material to cover or block all open doorways, windows, cracks, and other openings.

18. Ground this product. This Welder requires the attachment and use of a UL-listed, **240** volt, grounded, 3-prong, electrical Power Cord Plug (not included). Only a qualified electrician should install the Power Cord Plug. Never remove the grounding prong or modify the Power Cord Plug in any way. Do not use adapter plugs with this product.



19. Do not use near degreasing or painting operations.



20. Enclose the work area with portable fire resistant screens. Protect combustible walls, ceilings, floors, etc., from sparks and heat with fire resistant covers.
21. If working on a metal wall, ceiling, etc., prevent ignition of combustibles on the other side by moving the combustibles to a safe location. If relocation of combustibles is not possible, designate someone to serve as a fire watch, equipped with a fire extinguisher, during the cutting process and for at least one half hour after the cutting is completed.
22. Do not weld or cut on materials having a combustible coating or combustible internal structure, as in walls or ceilings, without an approved method for eliminating the hazard.
23. Do not dispose of hot slag in containers holding combustible materials. Keep a fire extinguisher nearby and know how to use it.
24. After spot welding, make a thorough examination for evidence of fire. Be aware that easily-visible smoke or flame may not be present for some time after the fire has started. Do not weld or cut in atmospheres containing dangerously reactive or flammable gases, vapors, liquids, and dust. Provide adequate ventilation in work areas to prevent accumulation of flammable gases, vapors, and dust. Do not apply heat to a container that has held an unknown substance or a combustible material whose contents, when heated, can produce flammable or explosive vapors. Clean and purge containers before applying heat. Vent closed containers, including castings, before preheating, welding, or cutting.
25. Do not touch live electrical parts. Wear dry, insulating gloves. Do not touch electrode or conductor tong with bare hand. Do not wear wet or damaged gloves.
26. Protect yourself from electric shock. Do not use outdoors. Insulate yourself from the work piece and ground. Use nonflammable, dry insulating material if possible, or use dry rubber mats, dry wood or plywood, or other dry insulating material large enough to cover your full area of contact with the work or ground.
27. Ensure that the unit is placed on a stable location before use. If this unit falls while plugged in, severe injury, electric shock, or fire may result.
28. Avoid overexposure to fumes and gases. Always keep your head out of the fumes. Do not breathe the fumes. Use enough ventilation or exhaust, or both, to keep fumes and gases from your breathing zone and general area.
29. Where ventilation is questionable, have a qualified technician take an air sampling to determine the need for corrective measures. Use mechanical ventilation to improve air quality. If engineering controls are not feasible, use an approved respirator.
30. Follow OSHA guidelines for Permissible Exposure Limits (PEL's) for various fumes and gases.
31. Follow the American Conference of Governmental Industrial Hygienists

recommendations for Threshold Limit Values (TLV's) for fumes and gases.

32. Have a recognized specialist in Industrial Hygiene or Environmental Services check the operation and air quality and make recommendations for the specific welding or cutting situation.
33. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

<b>⚠ WARNING</b>	
	
<b>INHALATION HAZARD: Welding and Plasma Cutting Produce TOXIC FUMES.</b>	
<p>Exposure to welding or cutting exhaust fumes can increase the risk of developing certain cancers, such as cancer of the larynx and lung cancer. Also, some diseases that may be linked to exposure to welding or plasma cutting exhaust fumes are:</p> <ul style="list-style-type: none"><li>• Early onset of Parkinson's Disease</li><li>• Heart disease</li><li>• Ulcers</li><li>• Damage to the reproductive organs</li><li>• Inflammation of the small intestine or stomach</li><li>• Kidney damage</li><li>• Respiratory diseases such as emphysema, bronchitis, or pneumonia</li></ul> <p>Use natural or forced air ventilation and wear a respirator approved by NIOSH to protect against the fumes produced to reduce the risk of developing the above illnesses.</p>	

**⚠ SAVE THESE  
INSTRUCTIONS.**



## SPECIFICATIONS

Electrical Requirements	240 V~ / 60 Hz / Single Phase Power Plug Type: 240 Volt, 3-Prong, Grounded (Not Included)
Output Current	AC 55 - 135A DC 30 - 105A
Max. Input Current	40 Amps Operating
Indicators	Power On Light (Green) Thermal Overload Light (Orange)
Welding Capacity Thickness	Up to 1/4" (using 1/16", 3/32" or 1/8" diameter electrodes)
Duty Cycle	10% @ 130 Amps AC 15% @ 100 Amps DC
Load Voltage	25.2V (AC operation) 24.2V (DC operation)
Open Circuit Voltage	68V (AC operation) 60V (DC operation)
Accessories	Welding Shield (Qty. 1) Hammer/Brush (Qty. 1) Electrode Holder (Qty. 1) Ground Clamp (Qty. 1)

## UNPACKING

When unpacking, check to make sure that the item is intact and undamaged. If any parts are missing or broken, please call Harbor Freight Tools at the number shown on the cover of this manual as soon as possible.

## INITIAL SET UP INSTRUCTIONS



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

## ⚠ WARNING

**TO PREVENT SERIOUS**

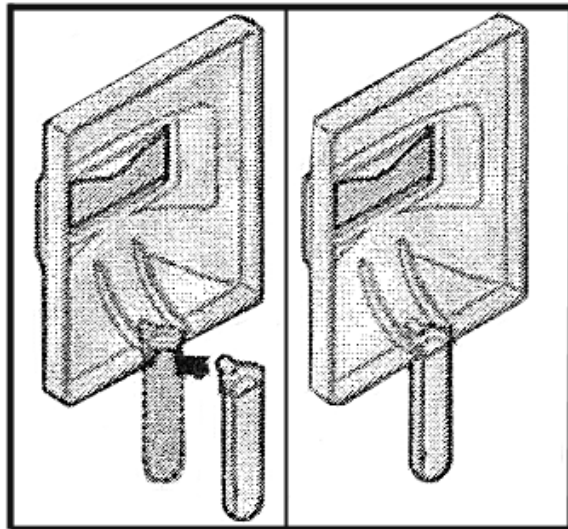
**INJURY FROM ACCIDENTAL OPERATION:**

**Turn the Power Switch of the Arc Welder to its "OFF" position and unplug the tool from its electrical outlet before assembling or making any adjustments.**

**Note:** For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

### Assembly

- To assemble the Welding Shield, place the Shield on a flat surface. Press the Handle into place. Then insert the Filter Lens. (See Figure A.)



**FIGURE A**

- This Welder requires the attachment and use of a UL-listed, **240** volt, grounded, 3-prong, electrical Power Cord Plug (not included). Only a qualified electrician should install the

REV 09d; 09I

Power Cord Plug. Never remove the grounding prong or modify the Power Cord Plug in any way. Do not use adapter plugs with this product.

3. To assemble the two Wheels (9), insert the Axle (8) through the two holes located at the bottom/rear of the Base Frame (3). Place the Wheels onto the protruding ends of the Axle. Then secure the Wheels in place, using one Bolt (10) for each end of the Axle. **(See Assy. Diagram.)**
4. To attach the Handle (30), align the two holes in the Handle with the two threaded mounting holes located at the top of the Case (28). Secure the Handle to the Case, using two Screws (31). **(See Assy. Diagram.)**

allow access by children or pets to prevent injury and distraction.

2. Route the Power Cord (32) along a safe route to reach the work area without creating a tripping hazard or exposing the power cord to possible damage. The power cord must reach the work area with enough extra length to allow free movement while working.
3. Secure loose workpieces using a vise or clamps (not included) to prevent movement while working. The workpieces should be firmly held together and in position while welding. The distance (if any) between the two workpieces must be controlled properly to allow the weld to hold both sides securely while allowing the weld to penetrate fully into the joint.
4. There must not be hazardous objects, such as utility lines or foreign objects, nearby that will present a hazard while working.
5. A barrier, such as a welding curtain or welding shroud, should be put up to protect others in the work area and limit the spray of sparks.

## **OPERATING INSTRUCTIONS**



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

### **⚠ WARNING TO PREVENT SERIOUS**

**INJURY FROM ACCIDENTAL OPERATION:**

Turn the switch to its off position before performing any inspection, maintenance, or cleaning procedures.

### **Workpiece and Work Area Set Up**

1. Designate a work area that is clean and well-lit. The work area must not

## General Operating Instructions

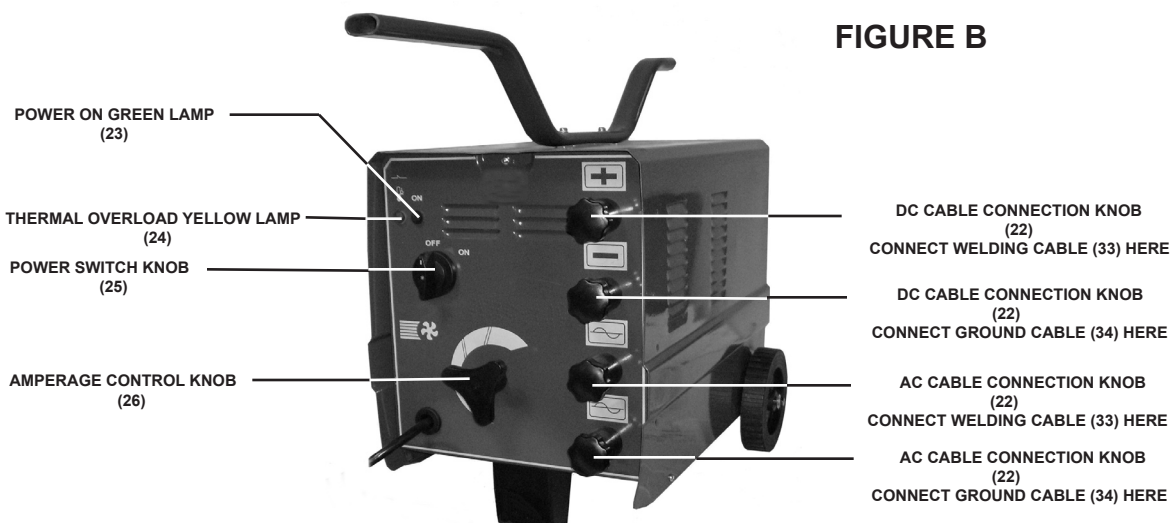
### **⚠ DANGER**

Protective gear must be worn when using the Arc Welder; ANSI-approved, arc shaded, eye protection, a full face shield, heavy-duty work gloves, a welding apron, NIOSH-approved respirator, and heavy-duty work clothes without pockets should be worn when using this product. Do not look at the ignited arc without eye protection. Light from the arc can cause permanent damage to the eyes. Light from the arc can burn the skin. Do not breathe arc fumes.

- The duty cycle defines the number of minutes, within a 10 minute period, during which a given Welder can safely produce a particular welding current. For example:
  - At a **10%** duty cycle (at 130 Amps AC), actual welding can occur for **one minute** and then the welder must cool for **nine minutes**.

- At a **15%** duty cycle (at 100 Amps DC), welding can occur for **1.5 minutes** and then the welder must cool for **8.5 minutes**.
- Failure to carefully observe duty cycle limitations can stress a Welder's power generation system, contributing to premature Welder failure.

- This Welder is equipped with an internal thermal protection system to help prevent damage to the unit. When the Arc Welder overheats the Yellow Lamp (24) is illuminated on the control panel and the unit automatically shuts down. Then the unit returns to service when it cools down and the Yellow Lamp turns off automatically. (See Figure B.)
  - Once the unit returns to service, follow a more conservative duty cycle routine to help prevent excess wear to the Welder.
- Determine whether AC or DC welding is to be used.
- Connect the Grounding Cable with Clamp (34) and Welding Cable with Electrode Holder (33) for either AC or DC operation. (See Figure B.)



5. Attach the Grounding Cable with Clamp (34) as close as possible to the intended welding location. **(See Assy. Diagram.)**
6. Place the bare end of the electrode (not included) in the Electrode Holder (33). **NOTE:** Always keep the jaws of the Electrode Holder clean to ensure proper electrical contact with the electrode. **(See Assy. Diagram.)**
7. Set the desired current (**Up to 135 Amps AC - Up to 105 Amps DC**) for the type of metal being welded with the Amperage Control Knob (26). Thin metals use lower current and heavy metals use higher current. **(See Figure B.)**
8. Make sure the Power Switch Knob (25) is off, then plug the Arc Welder's Power Cord (32) into a dedicated, 240 VAC, with delayed action type circuit breaker or fuses. **(See Figure B.)**
9. While grasping the handle of the Electrode Holder (33), with the electrode clear of grounded objects, turn the Power Switch Knob (25) to its "ON" position. **(See Figure B.)**
10. Hold the Welding Shield in front of your eyes. **WARNING!** Never look at the ignited arc without ANSI-approved arc shaded eye protection as in a full face shield. Permanent eye damage or blindness can occur. Skin burns can occur. Wear a NIOSH-approved respirator to avoid breathing arc fumes.
11. Stroke the area to be welded with the electrode to ignite the arc. Never tap the electrode into the welding surface to ignite the arc. This damages its external coating on the electrode which prevents oxygen in the air from coming into contact with the molten metal, causing it to oxidize.
12. Once the arc is ignited, tilt the electrode forward at an angle of approximately 30° and hold it at a distance from the welding object equal to the diameter of the electrode.
13. **NOTE:** If too much current is drawn from the Arc Welder, the Thermal Overload Protector will activate. The Yellow Lamp (24) on the Control Panel will illuminate, and the Welder will automatically shut off until it cools down. If this happens, turn the Power Switch Knob (25) to its "OFF" position and wait about 10 minutes. Then restart the Welder. **(See Figure B.)**
14. When the weld is complete, lift the electrode clearly away from any grounded object. Set the Welding Shield down, and turn the power Switch Knob (25) to its "OFF" position. **(See Figure B.)**
15. Unplug the Power Cord (32) from the electrical outlet. **(See Assy. Diagram.)**
16. Remove the Grounding Cable with Clamp (34) from the object it is clamped onto. Then remove the electrode from the Electrode Holder (33). **(See Assy. Diagram.)**
17. Clean and store the Arc Welder indoors out of reach of children and other unauthorized people.
18. **IMPORTANT:** Please read the included "**Weld Diagnosis Pamphlet**" for tips and suggestions concerning welding and proper usage.

REV 09d

---

## MAINTENANCE AND SERVICING

---



Procedures not specifically explained in this manual must be performed only by a qualified technician.

### **⚠️ WARNING**

#### **TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:**

Turn the Power Switch of the tool to its “OFF” position and unplug the tool from its electrical outlet before performing any inspection, maintenance, cleaning, or storage procedures.

1. **BEFORE EACH USE**, inspect the general condition of the Arc Welder. Check for cracked or missing insulators, damaged electrical wiring, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use. **Do not use damaged equipment.**
2. **AFTER USE**, clean external surfaces of the Arc Welder with a clean cloth. Use compressed air to blow all dust and debris from the ventilation openings.
3. **AFTER USE**, store the Arc Welder in a clean, dry, safe location out of reach of children and other unauthorized people.

**Note:** When not in use, always keep the grounding cable and its Clamp (34) disconnected from any metal object.

## TROUBLESHOOTING

Problem	Possible Causes	Possible Solutions
Welder does not "hum" when turned on.	<ol style="list-style-type: none"> <li>1. No power at electrical outlet.</li> <li>2. Broken or damaged Power Cord.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check circuit fuse or circuit breaker.</li> <li>2. Have Power Cord repaired or replaced by a qualified electrician.</li> </ol>
Welder "hums" but does not weld.	<ol style="list-style-type: none"> <li>1. Inadequate current at electrode and/or poor connections at Welder.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check Ground Clamp, Cable, and connection to workpiece.</li> <li>2. Check Welding Cable and Electrode Holder.</li> <li>3. Check all Welder external connections.</li> </ol>
Arc difficult to strike.	<ol style="list-style-type: none"> <li>1. Electrode diameter too large.</li> <li>2. Workpiece not properly grounded.</li> <li>3. Heavy loads, making power line voltage low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use smaller diameter electrode.</li> <li>2. Verify proper grounding (no paint, varnish, or corrosion).</li> <li>3. Run Arc Welder on dedicated 230 volt circuit.</li> </ol>
Welder gives trickle shots.	<ol style="list-style-type: none"> <li>1. Accidental contact with workpiece.</li> <li>2. Current leakage caused by moist clothing or work area.</li> </ol>	<ol style="list-style-type: none"> <li>1. Avoid contact with workpiece.</li> <li>2. Make sure clothing and work area are dry.</li> </ol>
Welder overheats, blows fuses, trips circuit breaker.	<ol style="list-style-type: none"> <li>1. Use of extension cord.</li> <li>2. Electrode diameter too large.</li> <li>3. Overloaded circuit.</li> </ol>	<ol style="list-style-type: none"> <li>1. Relocate Arc Welder to avoid use of extension cord. If relocation of Welder is not possible, use thicker (lower gauge number) extension cord.</li> <li>2. Use smaller diameter electrode.</li> <li>3. Run Arc Welder on dedicated 230 volt circuit.</li> </ol>
Bead is intermittently too thin or too thick.	<ol style="list-style-type: none"> <li>1. Inconsistent travel speed.</li> <li>2. Output Amp setting too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease and maintain travel speed.</li> <li>2. Increase output Amp setting or change to smaller diameter electrode.</li> </ol>
Electrode sticks to workpiece.	<ol style="list-style-type: none"> <li>1. Arc length too short.</li> <li>2. Output Amp setting too low.</li> </ol>	<ol style="list-style-type: none"> <li>1. Lift electrode to correct arc length as soon as arc is struck.</li> <li>2. Increase output Amp setting or change to smaller diameter electrode.</li> </ol>
Electrodes sputter and stick.	<ol style="list-style-type: none"> <li>1. Damp electrodes.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use dry electrodes and store in a dry location.</li> </ol>
Weld bead does not penetrate base metal.	<ol style="list-style-type: none"> <li>1. Travel speed too fast.</li> <li>2. Arc length too short.</li> <li>3. Output Amp setting too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease travel speed.</li> <li>2. Increase arc length.</li> <li>3. Reduce output Amp setting.</li> </ol>
Ragged depressions at edge of weld.	<ol style="list-style-type: none"> <li>1. Slow and/or inconsistent travel speed.</li> <li>2. Output Amp setting too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. Increase and maintain travel speed.</li> <li>2. Reduce output Amp setting.</li> </ol>

### PLEASE READ THE FOLLOWING CAREFULLY

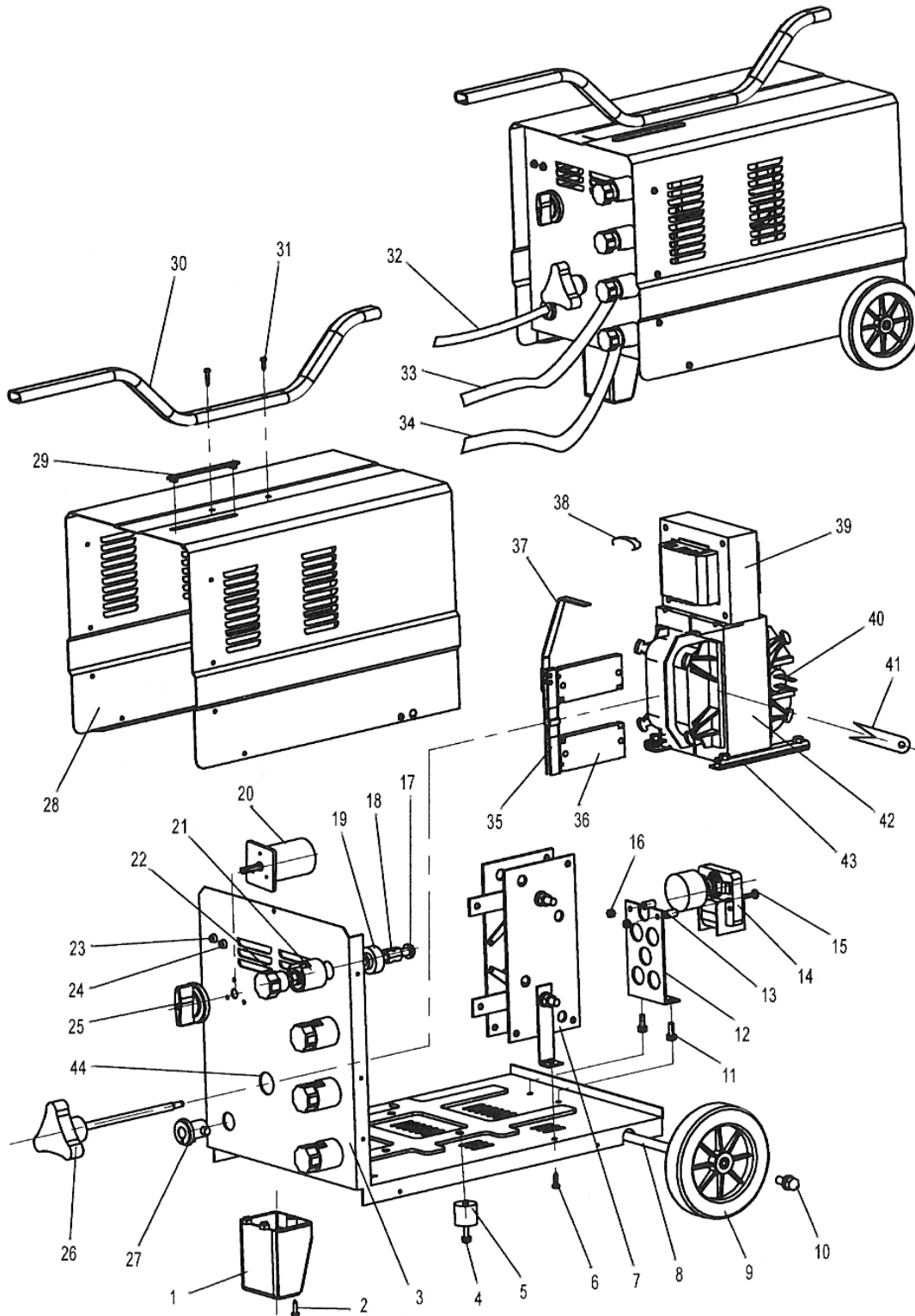
THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.



## PARTS LIST

Part #	Description	Qty.	Part #	Description	Qty.
1	Kickstand, Plastic	1	23	Green Lamp	1
2	Screw (ST4.2x13)	1	24	Yellow Lamp	1
3	Base Frame	1	25	Power Switch Knob	1
4	Screw (M6x25)	4	26	Amperage Control Knob	1
5	Foot, Plastic	4	27	Relief Strain	1
6	Screw (M4x12)	1	28	Case	1
7	Rectifier	1	29	Clear Cover	1
8	Axle	1	30	Handle	1
9	Wheel, Plastic	2	31	Screw (M5x30)	2
10	Bolt (M6x12)	2	32	Power Cord	1
11	Screw (M4x8)	2	33	Welding Cable with Electrode Holder	1
12	Fan Support Shelf	1	34	Grounding Cable with Clamp	1
13	Locating Collar	2	35	Movable Iron Core Frame	1
14	Fan	1	36	Movable Iron Core	2
15	Screw (M4x40)	2	37	Indicator	1
16	Nut (M4)	2	38	Clamp Ring	2
17	Bolt (M8x16)	4	39	Filter Reactor	1
18	Bolt (M8x37)	4	40	Thermostat	1
19	Insulation Washer (1)	4	41	Baffle	1
20	Switch	1	42	Transformer	1
21	Insulation Washer (2)	4	43	Transformer Carriage	2
22	Cable Connecting Knob	4	44	Rubber Ring	1

# ASSEMBLY DIAGRAM



---

## LIMITED 1 YEAR / 90 DAY WARRANTY

---

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that for a period of ninety days from date of purchase that the torch, liner, wire feed mechanism (if applicable), welding clamps, electrode holders, cables and accessories packed with the welder are free of defects in materials and workmanship. **This Limited 90 Day/1 Year Warranty shall not apply to consumable parts such as tips, welding wire, and gas nozzles.** Harbor Freight Tools also warrants to the original purchaser, for a period of one year from date of purchase, that the transformer and rectifier are free from defects in materials and workmanship (90 days if used by a professional contractor or if used as rental equipment). This warranty does not apply to damage due directly or indirectly to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, normal wear and tear, or to lack of maintenance. We shall in no event be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

**3491 Mission Oaks Blvd. • PO Box 6009 • Camarillo, CA 93011 • (800) 444-3353**

**Record Product's Serial Number Here:** \_\_\_\_\_

**Note:** If product has no serial number, record month and year of purchase instead.

**Note:** Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts.